CLAIMS

What is Claimed is:

1. A method for identifying contours within pixel-based image data, comprising:

expressing said image data as a grid of columns and rows;

establishing a scan order over said grid to define a parent-child relationship between contiguous pixels in adjacent rows and to define a sibling relationship among non-contiguous pixels in the same row;

establishing a run data structure in computer-readable memory that defines a run member by is row position and by its starting and ending column positions;

said run data structure further defining parent, child and sibling structures for storing information about the parent-child relationships and sibling relationships of pixels associated with said run member;

scanning said image data according to said scan order to identify contiguous pixels of a predetermined state as identified run members;

determining the parent-child and sibling relationships of said identified run members;

populating said run data structure with the row position and starting and ending column positions of said identified run member and with the parent-child and sibling relationships of said identified run member;

using said populated run data structure to traverse the parent-child and sibling relationships and thereby identify contours within said pixel-based image data.

2. The method of Claim 1 further including the steps of:

generating reconstructed circles based on broken contours, the reconstructed circles uniquely identified and separate from any other circles which overlap the reconstructed circle.

3. The method of Claim 1 wherein the predetermined state is a tone, a color and combinations thereof.

4. The method of Claim 1 wherein the parent-child and sibling relationships are pointers which establish a linked list of the run member data structures.

5. The method of Claim 1 further includes the steps of:

identifying the first run member occupying a row position and starting and ending column positions;

determining all parent-child and sibling relationships of pixels associated with the first run member;

identifying additional run members based on the parent-child and sibling relationships; and

wherein a connected component is retrieved based on identifying links from the parent-child relationships.